CAN THE EXCESS OF LIQUIDITY AFFECT THE EFFECTIVENESS OF THE EUROPEAN MONETARY POLICY?

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CAN THE EXCESS OF LIQUIDITY AFFECT THE EFFECTIVENESS OF THE EUROPEAN MONETARY POLICY?

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Abstract: The abundance of liquidity in the euro area observed during the 1990s forced the European central banks to relax their monetary policy. The demand of bank corporate lending, however, has slowed down, suggesting that monetary policy has not been effective in this area. Firms decided to hold liquid assets in order to: i) protect themselves against a future scenario of growing interest rates, lower earnings and higher restrictions and costs of accessing capital markets; and ii) allow them to invest in attractive investment projects in the event of a tightening of monetary conditions. These hypotheses are shown to be valid according to the empirical results shown in this paper from a sample of Spanish firms during 1992-2000. (118 words)

Key words: monetary policy transmission, liquidity, firms.

JEL Codes: E51, G21, D21.

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1. Introduction.

In recent years, liquidity has been abundant in the euro area. As a consequence, European central banks relaxed monetary policy. In this context, the demand of bank corporate lending slowed down, suggesting that monetary policy actions in this area have not been efective. If bank credit is abundant and cheap, why do firms would rather prefer to use their liquidity or other non-bank financing as trade credit? The most likely interpretation is that the poor sales growth prospects generate uncertainty so that firms decided to hold liquidity assets in order to: i) protect themselves against a future scenario of growing interest rates, lower earnings and higher restrictions and costs of accessing capital markets; and ii) allow them to invest in attractive investment projects in the event of a tightening of monetary conditions. These decisions are not trivial, since they may have an important impact on aggregate investment and economic growth. By choosing to hold liquid assets, firms will often forego to invest in possibly riskier but more profitable investment project. Opportunity costs of underinvestment are high and firm growth may be negatively affected since investment returns frequently pave the way for future investments. Within this framework, the relative use of liquidity will highly depend on capital structure or other firm characteristics such as size.

The effect of monetary policy on liquidity and investment has been traditionally analyzed from the banking sector perspective, employing the so-called bank lending approach. The existing empirical evidence indicates that financial institutions with a higher proportion of liquid assets exhibit greater capacity to maintain the level of their credit investments in the event of a hardening of monetary conditions and they do not need to rely on other alternative sources of finance (Kashyap and Stein, 2000). In the case of non-financial firms, however, there is very limited empirical evidence, particularly en Europe.

This article aims to analyze the financing behaviour of firms when their liquidity holdings are high and interest rates are decreasing. Two main hypotheses are considered. First of all, firms may

replace bank lending by other sources of funding. Secondly, they can increase their demand of bank credit to undertake new investments and grow. The nature of these decisions should not be trivial for policymakers, central banks, banking institutions and non-financial firms in the context of the European financial integration and the single European monetary policy. It should be also taken into account that European firms rely more heavily on bank loans than their US counterparts. This paper aims to contribute to the existing literature by offering empirical evidence in this area taking the Spanish case as reference. The Spanish case is a particularly interesting laboratory for two main reasons: 1) the 95 percent of firms are SME and they depend critically on bank credit to undertake their investment projects and they have a very limited access to capital markets; 2) during the sample period (1992-2000) there has been a considerable reduction in the opportunity cost of maintaining liquid assets, as a consequence of a substantial reduction of interest rates.

The paper is organized as follows. Section 2 surveys the existing literature. The empirical methodology is described in section 3. The main empirical aim is to analyze changes in the structure of firm external finance related to monetary policy conditions during 1992-2000. Several structural and non-structural characteristics are considered as control variables. Section 4 shows the main empirical results, and the ends with a summary of the main conclusions and policy implications in section 5.

2. Firm financing and monetary policy conditions: background

According to Modigliani and Miller (1958) –under the assumption of perfect markets and information– the market value of a firm is independent of its financial structure. Investment decisions depend only on the expected rate of return. In this context, it is indifferent to firms whether they use their own capital or obtain external finance in order to carry out their investment projects. Likewise, the distinction between bank debt and non-bank debt is not relevant, as the providers of both types of finance face the same conditions of supply.

The empirical evidence shows that firms do not carry out their business in a world characterised by fulfilment of the theoretical assumptions of the perfect information model (Kashyap *et al*., 1994; Bernanke et al., 1996). In the presence of asymmetries of information, and given the non-perfect substitutive character of the different sources of finance, firms show, within the alternatives available, the following order of preferences: own resources, trade credit, financing from the capital markets and bank credit (Myers and Majluf, 1984; Calomiris and Hubbard, 1990). The way in which this structure is materialised determines the composition of the balance sheet, as well as the external finance premium, borne because of the cost assumed in the valuation of the collateral offered, and the control carried out during the period in which a debtor position is maintained (Stiglitz and Weiss, 1981).

Given the relevance of information asymmetries in the process of credit supply (from any lender the firm can interact with), the theory of the balance sheet channel establishes that transformations in the structure of firms' balance sheets – originated by the propagation of the economic cycle – may alter its capacity to capture resources and expenditure, leading to the generation of endogenous credit cycles (Kiyotaki and Moore, 1997). In this context, the financial wealth of firms determines their possibilities of obtaining finance, as it acts as collateral for the possible non-repayment of the capital contributed (Gertler, 1988). The theory of the bank lending channel shows that the financial wealth together with the composition of the financial debt, and the structural financial characteristics of the firm (i.e. its level of capital and liquidity), determine the degree of access to bank credit, especially when the supply of credit shrinks following a tightening of monetary conditions (Kashyap and Stein, 1995; Stein, 1988; Kishan and Opiela, 2000). Consequently, it is expected that smaller firms and those with a lower level of capital will be affected to a larger extent by a contractive disturbance of monetary policy (Kashyap et al., 1996).

Firms of larger size present less severe problems of moral risk and adverse selection, because of the greater transparency with which they operate. This is perceived by the markets, so that they

have, compared to small production units, a greater capacity for debt and for replacing bank credit by other types of financing when official interest rates rise (Hubbard, 1998). Likewise, those firms with greater strength of own capital will display – in the face of restrictions in the markets where they seek external finance – a greater capacity to carry out their investment projects (Baccheta and Caminal, 2000). Consequently, it is easy to observe that the operativity of the bank lending channel is similar, when these two criteria are taken into account, for both financial and non financial firms.

A different conclusion is obtained when the analysis takes into account the level of liquidity, given the ambiguity of the empirical results obtained. On the one hand, there is some empirical evidence to confirm that the holding of liquid assets above a certain threshold limits the possibilities of obtaining external resources, as it decreases the possibilities of transformation of the asset portfolio, as well as the net value of the firm, and therefore of the collateral that can be offered (Morellec, 2001). On the other hand, other studies maintain that firms with a substantial cushion of liquidity are better placed to grant and obtain finance from other firms in the economy, especially when there have been successive falls in interest rates.

3. Empirical methodology and data

3.1. Specification and definition of variables.

The general equation to be estimated is given by:

$$\Delta FINDEX_{nt} = \alpha_n + \sum_{j=1}^{3} \beta_j \Delta FINDEX_{n(t-j)} + \sum_{j=0}^{3} \chi_j \Delta r_{t-j} + \sum_{j=0}^{3} \delta_j \Delta ta_{n(t-j)} + \sum_{j=0}^{3} \phi_j \Delta CAP_{n(t-j)} + \sum_{j=0}^{3} \varphi_j \Delta LIQ_{n(t-j)} + d_t + \varepsilon_{nt} \quad (1)$$

where *FINDEX* is an indicator that represents the structure of external finance, as well as the debt maintained by firms; *r* is the official interest rate; *TA* the size of the firm; *CAP* the level of capitalisation; *LIQ* the level of firm liquidity at each moment of time *t*; while Δ, *d* and ε, are the

difference operator, the vector of dummy time variables, and an error term, respectively. Finally, α is a firm fixed effect. This term captures the deterministic trend shown by *d* for the firms in the sample[1].

Three indicators were used to represent the external financial structure (*FINDEX*). The first, *CRED* is defined as "Bank Credit / (Bank Credit + Trade Credit)". The lower this indicator is, the higher the use of the trade credit when the firm is subject to restricted access to bank credit following a monetary contraction (Meltzer, 1960; Nilsen 2002). The second indicator is *BANK*, which is defined as the quotient between bank credit and total debt. The lower this indicator is, the higher the use of the capital markets instruments when the firm faces a reduction bank credit supply, a rise in the cost of bank credit or a higher demand of collateral (Gertler and Gilchirst., 1994; Oliner and Rudebusch, 1995)[2]. Finally, the third indicator is *DEB*, which is defined as total debt as a proportion of total liabilities (Hubbard, 1998). The lower *DEB* is, the higher the use of equity as a response to a monetary contraction.

The monetary policy interest rate employed -in line with the generally accepted literature (Kashyap et al., 1994; Oliner and Rudebusch, 1996)- is the inter-bank interest rate on non-transferable three month deposits. [3] Given the heavy dependence of Spanish firms on bank finance (Estrada and Vallés, 1998)- the cost of bank credit is determined by the rate that intermediaries face to obtain funding- so that the firm opportunity cost is appropriately reflected. [4]

With regard to the bank lending channel, those firms that exhibit a greater dependence on bank financing, find that monetary policy decisions are more intensively reflected in their balance-sheet structure. To analyse the distributive effects of this transmission mechanism it is necessary to take into

[1] With the aim of obtaining residuals from white noise, the number of lags incorporated is three. After carrying out the estimation with 1 to 6 lags, three lags minimised the residuals. Additionally, given that the variables are first-order integrated, as verified by the Augmented Dickey Fuller test (not shown), they are considered in first differences. This solves the problems derived from the possible existence of spurious correlation.
[2] In practice, the access to capital markets is usually only possible for large firms.
[3] We did not use the interest rate set by the Central Bank, because of the change in the public body responsible for the application of monetary policy (from the Bank of Spain to the ECB) during our period of study.
[4] The interest rate charged on firms' credit is determined, *inter alia*, by monetary policy conditions, by the market structure of the banking market, by the negotiating power of the firms, and by the existence of long-term contractual relationships between the lender and the borrower (Berger and Udell, 2002).

account the role played by certain specific structural characteristics of firms that may exacerbate the problems of asymmetrical information, agency costs and moral risk.

Even when size does not directly determine the possibilities of access to outside resources and their cost, this variable shows a high correlation with the factors determining risk and volatility in the returns to firms (Gertler and Gilchirst, 1994; Hubbard, 1998). Given the existence of asymmetric information problems, the size of the firm (*TA*) -given by the logarithm of Total Assets- will proxy the availability of information on the managerial capacity of firms and of the management degree of control over them (Stiglitz and Weiss, 1981). Along with these features, *TA* it also captures likely problems of moral hazard that arise from the existence of barriers to control and monitoring investments, which are reflected in a higher external financial premium (Petersen and Rajan, 1994).

Holding liquid assets above a certain threshold limits the possibilities of obtaining external resources. It also diminishes the possibilities of transforming the assets portfolio, as well as the net value of the firm and, therefore, the collateral that can be offered (Morellec, 2001). On the other hand, it may occur that firms that operate with a substantial liquidity buffer are likely to provide funding to other production units, in particular, in a context of low interest rates (Kim et al. 1998). The effect of liquidity is controlled with the variable *LIQ*, which is defined as the quotient between cash and other highly liquid assets, and total assets.

The financial structure of the firm is reflected by the level of capitalisation (*CAP*), defined as equity relative to total assets. The existing empirical evidence has shown that firms will try to carry out their investment projects relying as much as possible on their own resources, provided that they do not suffer problems of decapitalisation (Baccheta and Caminal, 2000).

3.2. Methodology and data.

We employ dynamic panel data to estimate equation (1). The GMM estimator of Arellano and Bond (1995) and Blundell and Bond (1998) is employed, given its capacity to reduce the estimation bias -whatever the size of the sample- resulting from the inclusion of lags of the dependent variable. This estimator is based on a simultaneous estimation of two equations. The first one is the regression in differences of equation (1), while the second refers to its estimation in levels. This method provides consistent and efficient estimations, if the appropriate instruments are employed, considering the residual correlation properties of the model (Hsiao, 1986). For this reason, the instruments used were the lagged dependent variable (2 to 5 lags) and 1 to 5 lags of the rest of the explanatory variables (*r*, *TA*, *CAP* and *LIQ*).

We employ microeconomic data from the pan-European Bureau Van Dijk Amadeus database. The sample consists of 15.617 Spanish firms for the period 1992-2000, resulting in a panel of 105.755 observations. [5,6,7] The data correspond to the consolidated accounting statements, since we aim to reflect possible transfers of assets or liquidity between firms that belong to a single business holding. Finally, the inter-bank interest rate on three month transferable deposits was taken from the Statistical Bulletin of the Bank of Spain.

In order to test the hypotheses derived from the theory of the bank lending channel, we have adopted a sequential scheme. In this sense, equation (1) is estimated at a first stage for all the firms of the sample. Subsequently, in order to show whether monetary policy measures generate distributive effects, firms are classified by size, level of capitalisation, and liquidity. In relation to the first of these criteria, the firms defined as large are those in the last quartile, while the "small" ones are those in the

[5] We did not employ macroeconomic data since these may give rise to biased results on the operativity of the transmission channels of monetary policy due to: 1) simultaneity problems; 2) frictions in the capital markets; and 3) heterogeneity among the firms in the sample (Chirinko et al., 1999).

[6] This data base contains information on, *inter alia*, the structure of the balance sheet, profit and loss account, number of employees, legal nature and industry classification. The lack of data presented by these variables on the age and credit rating of the firm prevents us incorporating them into the analysis.

[7] The periodicity of the data is annual, so we must bear in mind the potencial limitations on the analysis due to the impossibility of reflecting: 1) the immediate impact of variations in interest rates on the composition of external finance; and 2) the bias in the composition of the sample, as a consequence of the predominance of large firms.

first quartile.[8] The same criterion was applied to classify firms in terms of their level of capitalisation or liquidity.

Firms have also been classified according to the sector in which they carry out their activity[9]. The criterion of aggregation used was that defined by the CNAE93 statistical convention, considering subclasses of three digits[10]. Six categories were established:

- Agriculture, livestock, fisheries, hunting and forestry.
- Extractive industry, production and distribution of energy, electricity, gas and water.
- Manufacturing industry.
- Market services - shops, centres for the repair of motor vehicles, motorcycles, dedicated outlets for personal items for domestic use - transport, warehousing and communications.
- Construction.
- Education, health, social security and defence.

4. Empirical evidence.

Equation (1) was estimated for the different categories of firms defined in the previous section. The regression analysis was carried out considering the three specifications of *FINDEX* as dependent variable. We estimate the long-term coefficients (η), which are given by the sum of the short term coefficients of each of the independent variables, divided by one minus the sum of the short term coefficients of the dependent variable (Chatelain et al., 2004): [11]

[8] The distribution of firms among the different categories has been done for each individual period, in order to reflect the dynamic nature of the data. Consequently, each firm may appear in different classifications for each year, so the number of firms in the various categories need not remain constant throughout the period considered.
[9] This classification allows greater homogeneization of the influence of omitted but relevant variables. It also considers the different profiles of the investment (and of its financing) across economic sectors.
[10] This is the official classification by Eurostat and INE (Spanish Statistical Office).
[11] These coefficients represent the long-term percentage change in the indicator of the composition of external finance or debt, in response to a permanente variation of 1 % of any explanatory variables (i.e.interest rates, size, degree of capitalisation, liquidity, or bank gearing of the firm).

$$\eta = \frac{\sum_{i=0}^{3} \Phi_i}{1 - \sum_{i=1}^{3} \beta_i} \tag{22}$$

where Φ represents χ, δ, ϕ, φ, and γ, respectively. [12]

The values obtained by the Sargan test (see Table 1) confirm the validity of the instruments used. [13] On other hand, the values corresponding to the AR1 and AR2 tests indicate that there is no second order autocorrelation. We have also employed the Hubber-White procedure, in which the standard errors are calculated on the basis of the quasi-verisimilitude function.

4.1. The impact of monetary policy measures.

Table 2 summarizes the results of the impact of monetary policy actions. A unit increase in the inter-bank interest rate results in a reduction of .0119 in *CRED* (Bank Credit / (Bank Credit + Trade Credit)). This finding seems to confirm that in the presence of imperfections in the bank credit market, firms turn to trade credit to obtain the necessary resources for their business. This evidence is in line with the results obtained for the USA by Kashyap et al. (1994) and Oliner and Rudebusch (1996). In terms of the various categories of firms identified, we observe significant differences. In relation to size, the coefficient associated with larger firms is slightly lower, in absolute value, than that corresponding to the smallest ones. The same occurs when firms are classified according to their level of liquidity. If we distinguish by sectors, we observe that firms of primary and construction activities make a larger use of trade credit when the supply of bank credit shrinks, while the impact on firms engaged in the extraction and distribution of natural resources is practically negligible.

[12] We have not included the short term coefficients mainly because these coefficients have lower economic explanatory power and they are largely affected by strictly conjuctural factors. The exclusion of these results also simplifies the empirical evidence of the paper.

[13] The values obtained by incorporating a smaller number of instruments are characterised by the loss of significance of the long-term coefficients, as a consequence of the complex structural presented by the model (Chatelain et al., 2004).

The findings are similar when we employ *BANK* (Bank Credit/Total Debt) as dependent variable. When the price of bank loan rises, larger firms make a more intensive use of non-bank finance, due to its lower cost. In this sense, a unit increase in interest rates has led, in the long run to a fall of .0210 of *BANK*. This impact is similar for the lowest-capitalised firms (.0173), but it is greater for small firms (.0321). It is also greater for firms of the primary sector (.0211) and of manufacturing (.0211).

Finally, rises in interest rates do not seem to have generated a substantial and significant reduction in *DEB* (Total Debt/Total Liabilities). The coefficient corresponding to *r* is -.0025 for the firms classified as of low liquidity. As for the most significant differences across economic sectors, the lowest values correspond to construction (-.0012), while the highest are those of market services firms (-.0243) and those dedicated to agriculture, livestock, fishing and forestry (-.0212).

4.2. The impact of specific financial structural characteristics.

Table 3 summarizes the results for the impact of firm size on firms' financial characteristics. In the case of CRED, the long-term coefficient of the variable *TA* is -.0002 for the largest firms, rising to -.0058 for their smaller counterparts. The regressions employing *BANK* and *DEB* as dependent variable find similar impacts of size. These results appear to support that size have not conferred any advantage to large firms to obtain capital market funding.

A second factor influencing firms' orientation towards bank credit has been the strength of their own capital. The availability of sufficient internal funds for the materialisation of investment projects reduces the use of external finance (Baccheta and Caminal, 2000). Our empirical evidence supports this argument. Table 4 exhibits that the coefficient corresponding to *CAP* is negative and significant, with the exception of that referring to the subsample of market services and construction firms. When the dependent variable considered is *BANK*, we observe that higher own capital has largely compensated the reduction of bank credit in the case of firms devoted to extraction, production and distribution of energy, electricity, gas and water, and manufacturing industry.

Finally, table 5 shows that in the long run, an increase of 1 % in the relative weight of liquid assets on the balance sheet has led to a reduction of *CRED*. The magnitude of this impact is 1.8743 for the firms with a higher proportion of liquid assets. This coefficient is 1.5612 for the smaller firms. If we distinguish by sector, the role played by the cushion of liquidity has been greater for firms devoted to construction and market services. These results show a high correlation with those obtained when the dependent variable considered is *BANK*. [14]

4.3. Robustness check

With the aim of greater robustness for our analysis we employed alternative variables, and we included additional aspects that may determine firms' financial behaviour in reaction to changes of orientation of monetary policy. [15]

First, we replaced the three month inter-bank interest rate by the deviation of the interest rate from the rate estimated through the reaction function of the Central Bank (obtained by application of the VAR methodology). The results confirm that firms tend to alter the composition of their debt when monetary conditions are tightened. The magnitude with which this occurs is slightly lower, around 1 %, probably as a consequence of the underestimation of the exogenous component of the interest rate implied by the application of this methodology (Bernanke and Mihov, 1998).

Another test of robustness was to incorporate the cost of the debt in order to capture the possible influence of the relationship of the firm with the supplier of funding (i.e. how rates are set for the firm and how the rates are affected in a monetary contraction). The results indicate that in no case was it statistically significant.

[14] We have undertaken mean differences tests for the long-term coefficients of the following subsamples: largest versus smallest firms; highest-capitalisation versus lowest-capitalisation firms; firms with high liquidity vesus those with low liquidity; and each economic activity sector versus the total sample. The results (not shown) indicate that the differences are, in general, statistically significant.
[15] The results are available on request from the authors.

Subsequently, we proceeded to include the ratio between profits before taxes and interest paid, in order to quantify the restrictions set by firms' profitability on firms' financial decisions. According to our results show that it has not appeared to have been a significant factor. When this measure is replaced by *cash flow* (defined as cash receipts minus cash payments), the results do not vary significantly. In both cases, the long-term coefficient, even when it shows the expected sign, is not statistically significant.

The inclusion of ROA (Return on Assets) or ROE (Return on Equity) does not show that profitability has significantly influenced the composition of the firms' debt. Only ROA was statistically positive when the regression analysis was carried out for the total sample, and the dependent variable was *BANK*.

Two other aspects considered were the structure of ownership and the form of company adopted. With respect to the first, the firms were classified as private and public, the latter being those that throughout the period of study presented (any kind of Central, Regional or Local) Government participation among their shareholders. Likewise, the variable was not statistically significant in any of the cases, which seems to confirm that the existence of differences in the arguments of the target function and the mechanisms for obtaining external resources have not determined the uneven degree of access to the various sources of finance. The same occurs when we introduce a qualitative variable that takes the value 1 when the firm is a PLC, 2 a limited company, 3 a cooperative and 4 for other other legal forms. In this way, the results suggest that the ownership regime has not determined the existence of differences in the access to bank credit as against other alternative sources.

Finally, we included the logarithm of GDP or the logarithm of firms' sales to capture the possible impact of the economic cycle. Only in some cases was the long-term coefficient associated with these variables significant at 10 %. For example, it was significant for small firms and for firms with a low level of liquidity when the dependent variable is *BANK*.

5. Conclusions and policy implications

During the 1990s, liquidity has been abundant in the euro area and, as a consequence, European central banks relaxed their monetary policies. However, the demand of corporate bank lending slowed down, suggesting that monetary policy was not been effective in this area. The poor sales growth prospects generate then a big deal of uncertainty at firms. In this context firms may have decided to hold liquidity assets for two main reasons: i) protect themselves against a future scenario of growing interest rates, lower earnings and higher restrictions and costs of accessing capital markets; and ii) allow them to invest in attractive investment projects in the event of a tightening of monetary conditions. These hypotheses are tested on a sample of Spanish firms during 1992-2000. Using dynamic panel data techniques, we study the impact of monetary policy actions on the structure of firms' external finance.

The empirical results show that when interest rates increase, firms reduce their dependence on bank lending and maintain a higher level of liquidity. Considering this behaviour, the European Central Bank should consider situations in which expansive monetary policies will be hardly effective to promote firm investments.

Table nº 1: Summary of analysis regression of the different models specifications.

Sample	Dependent Variable:														
	CRED					***BANK***					***DEB***				
	Sargan Test	**AR1**	**AR2**	**Number of firms**	**Number of observations**	**Sargan Test**	**AR1**	**AR2**	**Number of firms**	**Number of observations**	**Sargan Test**	**AR1**	**AR2**	**Number of firms**	**Number of observations**
Total Sample	.210	.000	.291	15,617	82,667	.312	.000	.362	15,617	105,197	.168	.000	.286	15,617	105,729
Large Firms	.256	.000	.289	2,095	9,045	.294	.000	.334	2,095	9,813	.141	.000	.251	2,095	9,811
Small Firms	.278	.000	.291	3,496	7,471	.151	.000	.241	3,096	16,191	.291	.000	.299	3,096	16,379
High Liquidity Firms	.254	.000	.286	4,105	13,063	.228	.000	.254	4,105	16,320	.254	.000	.345	4,105	16,377
Low Liquidity Firms	.251	.000	.297	3,509	7,500	.213	.000	.381	3,520	10,197	.365	.000	.321	3,509	10,227
High Capitalization Firms	.152	.000	.311	3,266	10,761	.232	.000	.361	3,266	14,525	.221	.000	.311	3,266	14,703
Low Capitalization Firms	.169	.000	.337	2,533	5,703	.254	.000	.354	2,533	8,640	.276	.000	.301	2,533	8,639
Agriculture, Hunting and Fishery	.402	.000	.375	371	1,535	.251	.000	.401	371	2,169	.221	.000	.398	371	2,184
Extraction	.211	.000	.389	303	1,656	.290	.000	.206	303	2,090	.231	.000	.245	303	2,095
Industry, Energy & Water															
Manufacturing Industry	.198	.000	.399	4,602	25,258	.311	.000	.201	4,602	32,045	.265	.000	.345	4,602	32,210
Retail trade, Repairs, Domestic articles, Hotel, Restaurants, Transport and Communications	.231	.000	.310	6,834	37,027	.243	.000	.228	6,834	46,977	.266	.000	.321	6,834	47,217
Construction	.240	.000	.343	2,726	14,769	.289	.000	.241	2,726	18,738	.231	.000	.397	2,726	18,834
Other marketable services	.342	.000	.353	217	2,422	.301	.000	.342	217	3,178	.309	.000	.376	217	3,189

Estimation by GMM-system estimator using the robust two step method. Sargan test is a test of over-identifying restrictions (p-value reported), distributed as chi-squared under the null of instruments validity. AR_j is a test of *j*th-order serial correlation in the first-differenced residuals. These are both distributed as standard normal under the null hypothesis.

Table nº2: The effect of monetary policy (*r*) on the external financial structure indicator. Long term coefficients.

	Dependent variable:		
	CRED	***BANK***	***DEB***
Total Sample	-.0119***	-.0210**	-.0076**
	(-3.16)	(-2.23)	(-2.12)
Large Firms	-.0207***	-.0011**	-.0087**
	(-2.89)	(-2.21)	(-2.18)
Small Firms	-.0234***	-.0321***	-.0073**
	(-3.45)	(-3.21)	(-2.15)
High Liquidity Firms	-.0121*	-.0164*	-.0029*
	(-1.89)	(-1.85)	(-1.80)
Low Liquidity Firms	-.0563*	-.0111*	-.0025*
	(-1.92)	(-1.90)	(-1.85)
High Capitalization Firms	-.0161***	-.0061***	-.0017**
	(-2.89)	(-2.94)	(-2.09)
Low Capitalization Firms	-.0127**	-.0137**	-.0328**
	(-2.12)	(-2.21)	(-2.11)
Agriculture, Hunting and Fishery	-.0299***	-.0211***	-.0212**
	(-2.76)	(-2.85)	(-2.33)
Extraction Industry, Energy & Water	-.0031***	-.0042**	-.0029**
	(-3.07)	(-2.11)	(-2.04)
Manufacturing Industry	-.0221***	-.0430***	-.0156***
	(-2.98)	(-2.89)	(-2.78)
Retail trade, Repairs, Domestic articles, Hotel, Restaurants, Transport and Communications	-.0125***	-.0111***	-.0243***
	(-2.65)	(-2.63)	(-2.71)
Construction	-.0231**	-.0129**	-.0012***
	(-1.98)	(-2.02)	(-2.66)
Other marketable services	-.0171***	-.0169**	-.0001
	(-2.12)	(-2.25)	(-1.34)

Notes: ***/**/* denotes significance at 1, 5 and 10 % levels. t-statistic reported in parenthesis.

Table nº3: The effect of size (*TA*) on the external financial structure indicator. Long term coefficients.

	Dependent variable:		
	CRED	***BANK***	***DEB***
Total Sample	-.0004***	-.0011**	-.0003**
	(-3.11)	(-2.33)	(-2.44)
Large Firms	-.0002	-.0018**	-.0002***
	(-1.51)	(-2.44)	(-2.59)
Small Firms	-.0058**	-.0046	-.0003**
	(-1.98)	(-1.11)	(-1.98)
High Liquidity Firms	-.0005**	-.0002	-.0001
	(-2.13)	(-0.89)	(-0.78)
Low Liquidity Firms	-.0001**	-.0002**	-.0002**
	(-2.22)	(-1.98)	(-2.01)
High Capitalization Firms	-.0002**	-.0001***	-.0001**
	(-2.34)	(-2.58)	(-2.34)
Low Capitalization Firms	-.0009**	-.0005**	-.0006**
	(-1.99)	(-2.46)	(-2.21)
Agriculture, Hunting and Fishery	-.0006***	-.0009**	-.0006*
	(-3.19)	(-2.50)	(-1.97)
Extraction Industry, Energy & Water	-.0004***	-.0004**	-.0008**
	(-3.30)	(-1.99)	(-2.11)
Manufacturing Industry	-.0009***	-.0190***	-.0003**
	(-3.65)	(-3.65)	(-2.43)
Retail trade, Repairs, Domestic articles, Hotel, Restaurants, Transport and Communications	-.0007***	-.0001***	-.0001
	(-2.97)	(-2.99)	(-1.78)
Construction	-.0002***	-.0003***	-.0002**
	(-3.01)	(-3.13)	(-2.21)
Other marketable services	-.0005***	-.0002***	-.0004
	(-3.33)	(-3.45)	(-1.78)

Notes: ***/**/* denotes significance at 1, 5 and 10 % levels. t-statistic reported in parenthesis. The coefficient corresponding to *ta* is multiplying by 100.

Table nº4: The effect of capitalization level (*CAP*) on the external financial structure indicator. Long term coefficients.

	Dependent variable:		
	CRED	***BANK***	***DEB***
Total Sample	-.0001**	-.00391***	-.0223***
	(-2.21)	(-2.87)	(-2.98)
Large Firms	-.0045***	-.0025***	-.0211***
	(-3.12)	(-3.21)	(-3.33)
Small Firms	-.0029**	-.0069***	-.0233***
	(-2.41)	(-2.87)	(-2.98)
High Liquidity Firms	-.0086**	-.0054**	-.0025***
	(-2.11)	(-1.99)	(-2.75)
Low Liquidity Firms	-.0011**	-.0111***	-.0212***
	(-1.99)	(-2.76)	(-2.93)
High Capitalization Firms	-.6212**	-.6610**	.5991**
	(-2.21)	(-2.45)	(-2.35)
Low Capitalization Firms	-.0017**	-.0132**	-.0025**
	(-2.01)	(-2.11)	(-2.22)
Agriculture, Hunting and Fishery	-.0195***	-.0046*	-.0016***
	(-3.78)	(-1.87)	(-2.87)
Extraction Industry, Energy & Water	-.0110***	-.0041**	-.0101***
	(-2.99)	(-1.97)	(-2.97)
Manufacturing Industry	-.0068***	-.0048**	.0018**
	(-3.19)	(-2.07)	(-2.10)
Retail trade, Repairs, Domestic articles, Hotel, Restaurants, Transport and Communications	-.0001	-.0005	-.0067***
	(-0.21)	(-0.34)	(-1.99)
Construction	-.0018	-.0041	-.0211***
	(-1.11)	(-1.43)	(-2.00)
Other marketable services	-.0023*	.0071	-.0111***
	(-1.89)	(-1.23)	(-2.98)

Notes: ***/**/* denotes significance at 1, 5 and 10 % levels. t-statistic reported in parenthesis.

Table nº5: The effect of liquidity level (*LIQ*) on the external financial structure indicator. Long term coefficients.

	Dependent variable:		
	CRED	***BANK***	***DEB***
Total Sample	-.6431***	-.8266***	-.3124**
	(-2.76)	(-3.15)	(-2.11)
Large Firms	-1.3169***	-.9417***	-.3986**
	(-2.98)	(-3.12)	(-2.34)
Small Firms	-1.5612***	-1.2201***	-.2432**
	(-3.12)	(-3.33)	(-2.13)
High Liquidity Firms	-1.8743***	-1.4387***	-.2287**
	(-3.02)	(-3.12)	(-2.43)
Low Liquidity Firms	-1.2134**	-1.5312***	-.5590**
	(-2.32)	(-2.67)	(-1.98)
High Capitalization Firms	-.0984***	-.0431**	.0877**
	(-3.15)	(-1.99)	(-1.99)
Low Capitalization Firms	-.2134***	-.6043**	-.6654**
	(-2.98)	(-2.12)	(-2.11)
Agriculture, Hunting and Fishery	-.4546*	-.6110**	-.3120*
	(-1.90)	(-2.34)	(-1.88)
Extraction Industry, Energy & Water	-.5218	-.2134	-.2001
	(-1.04)	(-1.23)	(-1.28)
Manufacturing Industry	-.0876***	-.1120	.0210
	(-3.21)	(-1.54)	(-0.65)
Retail trade, Repairs, Domestic articles, Hotel, Restaurants, Transport and Communications	-.6129***	-.5532**	-.3012
	(-3.15)	(-2.11)	(-0.56)
Construction	-1.4213***	-.9045***	-.2976*
	(-2.99)	(-2.34)	(-1.87)
Other marketable services	-.9221**	-.3254	-.05000*
	(-2.33)	(-1.00)	(-1.92)

Notes: ***/**/* denotes significance at 1, 5 and 10 % levels. t-statistic reported in parenthesis.

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